

CHAPTER

4

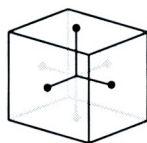
STUDY GUIDE FOR CONTENT MASTERY

Minerals

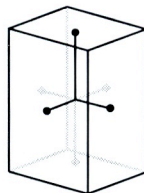
SECTION 4.1 *What is a mineral?*

In your textbook, read about mineral characteristics.

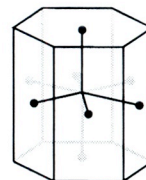
Label each diagram as *tetragonal*, *hexagonal*, or *cubic*.



1. _____



2. _____



3. _____

Answer the following questions.

4. What is a mineral?

5. Why is salt classified as a mineral, but sugar is not?

6. Can minerals occur as liquids? Why or why not?

7. Can the chemical composition of a single mineral vary? Explain your answer.

8. What is a crystal?

9. How does forming in a restricted space affect the structure of a crystal?

SECTION 4.2 Identifying Minerals

In your textbook, read about mineral identification.

Use each of the terms below just once to complete the passage.

cleavage

color

fracture

hardness

luster

specific gravity

streak

texture

Geologists use physical properties to identify minerals. For example, the **(1)** _____ of a mineral is caused by the presence of different trace elements. The way a mineral reflects light from its surface is called **(2)** _____, which is described as metallic or nonmetallic. How a mineral feels to the touch is called **(3)** _____. A mineral's **(4)** _____ is the color of a mineral when it is broken up and powdered. A measure of how easily a mineral can be scratched is called **(5)** _____.

Another property describes how a mineral will break. If a mineral splits easily and evenly along one or more planes, it has the property of **(6)** _____, while minerals that break along jagged edges are said to have **(7)** _____. The density of a mineral is usually expressed as **(8)** _____, which is the ratio of the weight of a substance to the weight of an equal volume of water at 4°C.

Answer the following questions.

9. Can all minerals produce a streak on a porcelain plate? Why or why not?

10. Can minerals with cleavage have more than one cleavage plane? If so, give an example.

11. What is the difference between density and specific gravity?

12. How many minerals are represented on the Mohs scale of mineral hardness?
What is the range of hardness of those minerals?

SECTION 4.2 *Identifying Minerals, continued*

Circle the letter of the choice that best completes the statement.

13. Identification tests for minerals are based on their
a. scientific names. c. value as ores.
b. physical and chemical properties. d. value as gems.
14. The appearance of milky quartz is caused by
a. its high density. c. its magnetism.
b. its hardness. d. trapped bubbles of gas and liquid.
15. A mineral's hardness with respect to other minerals can be determined by
a. its specific gravity. c. the Mohs scale of mineral hardness.
b. its cleavage planes. d. its magnetic properties.
16. Minerals break along planes where atomic bonds are
a. weak. b. strong. c. dense. d. magnetic.
17. Minerals, such as quartz, that break along jagged edges are said to have
a. cleavage. b. density. c. fracture. d. special properties.
18. The ratio of the weight of a substance to the weight of an equal volume of water at 4°C is its
a. chemical composition. c. specific gravity.
b. weight. d. hardness.

In your textbook, read about special properties of minerals.

Circle the letter of the choice that best completes the statement or answers the question.

19. In double refraction, light is
a. bent in two directions. c. obscured by gas bubbles in the crystal.
b. bent in one direction. d. changed to a magnetic field.
20. Calcite bubbles when it comes in contact with hydrochloric acid because the calcite releases
a. tetrahedron crystals. c. H₂O in the form of a liquid.
b. CO₂ in the form of a gas. d. zircon.
21. Lodestone can pick up iron filings. What special property does lodestone have?
a. a sticky texture c. magnetism
b. extreme heaviness d. a rotten-egg smell

CHAPTER**4****STUDY GUIDE FOR CONTENT MASTERY****SECTION 4.2** *Identifying Minerals, continued*

In your textbook, read about mineral uses.

Answer the following questions.

22. What makes a mineral an ore?

23. Is aluminum an ore? Explain your answer.

24. Can the classification of a mineral as an ore change? If so, how?

25. How are ores deep beneath Earth's surface removed?

26. How are ores near Earth's surface removed?

27. What two problems can result from removing waste material from ores?
